portant, with the regrowth of hair *it is the only truly hidden donor site.* This is an important consideration for burn victims, who often will have few parts of their body that have not been scarred either by the burn or by the surgeon's dermatome.

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Surgical Treatment of the Hand

WITH THE ESTABLISHMENT of the *Journal of Hand Surgery* and two national hand societies, the field of surgical treatment of the hand is now identified as a subspecialty. Training programs in surgical procedures on the hand in existing residency programs and free-standing fellowships are providing specialized training, and the programs themselves are being evaluated and standardized. There has been a tremendous expansion of surgical techniques on the hand with the evolution of microsurgical replantation and transplantation. Digital and hand replantations, a curiosity a few years ago, are now becoming routine and the results are being evaluated on the return of function to the replanted part, rather than mere survival. Reconstruction of thumbs and fingers by toe transplant is becoming more widely accepted. Multiple digits have been reconstructed by transplanting two adjacent toes or single toes from each foot. The thumb has been reconstructed with the transplantation of the large toe, the second toe, portions of the large toe, neurovascular island flaps combined with bone grafts and even thumb transplants from a functionless opposite hand.

Results after replantation of amputated digits and hands have been improved by careful attention to maintenance of bone stability with the primary use of intramedullary bone pegs, polyglycolic acid pegs, transverse intramedullary bone wires and improved instrumentation for inserting pins and small plates.

Other composite tissues have been transplanted to the hand with microneurovascular anastomosis, including metatarsal joints, osteocutaneous grafts from the hip and vascularized fibular grafts to forearm bone defects. However, these composite transplants have yet to withstand the test of time. Well-documented series of the correction of congenital defects, such as a radial clubhand, by classical techniques, remain the preferred method of treatment.

Nerve entrapment syndromes continue to be a diagnostic challenge in the field of surgery. Carpal tunnel syndrome is well recognized but ulnar compression syndromes, radial nerve compression problems and combined nerve compression problems are being recognized more and more.

Expanding interest in muscle transplantation from the lower to the upper extremities and muscle transfers within extremities have spurred interest in muscle anatomy and function. Fiber length and volume have become established as the key guidelines to consider with any transplant or transfer.

The replacement of old joints with new joints continues to be an area of special interest in surgical procedures of the hand. Though silastic implants are popular, tendon spacers and fusions must be considered.

Hand infections, once a major part of surgical treatment of the hand, are uncommon today; however, infections by normal flora and fungi are being reported, particularly in people on long-term steroid therapy. Congenital anomalies of the hand also present a challenging reconstructive problem. A better understanding of the management of these defects requires careful classification. Classic methods of treatment have always served as a standard against which new operations must be measured. Alternate flaps and alternate methods of reconstruction must always be considered.

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Current Trends in Treating Giant Pigmented Nevi

ALTHOUGH SOME controversy persists regarding frequency, there are numerous reports of high risk of malignancy in giant nevi. Reports vary from 1 percent to 15 percent in clinical series, and up to 42 percent in pathology series. Physicians at some institutions with large series of giant pigmented nevi have stated that they have never seen a case of a malignancy in one. Perhaps the best documented long-term series is from the Danish Birth Registry with a 17-year follow-up that reports a 3.3 percent incidence (4/117). However, the risk

is much lower for small nevi and these statistics do not apply for nevi less than 0.1 sq cm. Criteria have been established that histologically distinguish congenital nevi from acquired nevi. One of the most important characteristics of congenital nevi is the presence of a neural cell with neural-Schwann cell appearance in the deep dermis and fat.

The anatomic distribution of malignancy is characteristically in the posterior paravertebral zone from occiput to coccyx. Of reported cases, 95 percent occur on the posterior cranium, back and buttocks.

The age at which malignant change occurs follows a bimodal pattern: a high incidence in early childhood (birth to ten years), a low incidence in adolescence and early adulthood (10 to 30 years) and increasing incidence in late adulthood (over 40 years). The bimodal age incidence correlates to some extent with pathologic features of the malignancy.

Malignant lesions occurring in early childhood are highly atypical. Pathologic diagnosis of neuroblastoma, neurofibrosarcoma, liposarcoma, rhabdomyosarcoma, myxomas and undifferentiated sarcomas are more common than classic melanoma. On the face and scalp these cell types, including fat, muscle, nerve organelles and nerve sheath and the normal melanocyte, have an embryologic derivation from neural crest. It has been suggested that these tumors are all embryonal neural crest malignancy with variable histologic patterns.

Malignant lesions can be multiple and occur in deep dermis and fat, not at an epidermal-dermal junction. Moreover, the derivation of neural crest cells from the dorsal neural tube and migration from dorsal paravertebral areas to the ventral region could explain the dermatome pattern of benign nevi and the paravertebral distribution of neural crest malignancy in nevi in children.

Malignancy in adults may occur in the paravertebral region but it is more likely to occur at other sites. Furthermore, adult malignant lesions are usually typical melanomas without embryonal neural crest features.

Treatment of large nevi is difficult because of high morbidity and the poor cosmesis from multiple surgical excisions and skin grafts. Recently, interest has been restimulated in dermabrasion as a way of managing the very large lesions that cannot be easily excised and grafted. Cosmetic results of dermabrasion are much better than with grafting. The problem of residual deep neval cells and malignant potential has not been resolved. Dermabrasion does not remove hair.

Recently a compromise approach has been described. The central paravertebral area and other atypical areas are surgically excised and directly closed (without grafts). This removes the areas of high risk. The lower risk areas laterally and anteriorly are dermabraded. Small lesions of cosmetic importance on the face can be treated with skin flaps or grafts. Radiation and lasers do not have a role in treatment.

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Laser Technology

THE ARGON LASER has been used since 1970 in the plastic surgical and dermatological treatment of a variety of cutaneous lesions. The unique photocoagulating properties of the argon laser (model 770, Cooper Medical/Spectra Physics) make this modality invaluable for clinical treatment of a variety of cutaneous lesions. The laser produces intense, bright light that is between 480 and 520 nm, which is in the visible light spectrum. As such, it is not expected to produce iatrogenic malignant neoplasms as did x-ray or ultraviolet radiations years ago. For clinical use, a combination of blue (480 nm) and green (520 nm) is used for more complete absorption. This wave length coincides clinically with the maximum absorption curve of both hemoglobin and melanin, thus rendering laser light highly effective in the treatment of both cutaneous vascular and pigmented lesions.

The argon laser light has several unique properties that make it particularly valuable in the treatment of cutaneous lesions. Laser light has the ability to penetrate the intact epidermis until it is absorbed by a pigmented structure in the dermis. This pigment can be hemoglobin, melanin or suspended pigment of tattoo particles. The laser light is converted to heat on absorption, and this heat produces a very selective coagulation or vaporization in the upper dermal levels. Adjacent dermal